ANBCA 2

Analytical Biochemistry

An International Journal

EDITOR: *Alvin Nason*

ADVISORY BOARD:

Gary Ackers
Norman G. Anderson
Graldo Antonini
Gilbert Ashwell
Samuel P. Bessman
Simon Black
Robert M. Bock
Robert L. Bowman
Ludwig Brand
A. E. Braunstein
Melvin Calvin
Andreas Chrambach
Sidney Colowick
Frank Eisenberg, Jr.
Jacques R. Fresco
Victor Ginsburg
H. C. Gunsalus
Harlyn O. Halvorson
William Z. Hassid
Osamu Hayaishi
Edward C. Heath
C. H. W. Hirs
Evan C. Horning
Rollin D. Hotchkiss
Walter L. Hughes
Ephraim Katchalski
Irving Klotz
Luis F. Leloir
Olov Lindberg
Feodor Lynen
Vincent Massey
Manfred M. Mayer
Bruce Merrifield
Marshall Nirenberg
Kazuo Okunuki
Alexander Rich
Gerhard Schmidt
Michael Sela
Herbert A. Sober
Sol Spiegelman
Paul K. Stumpf
Charles A. Thomas, Jr.
Sidney Udenfriend
Bert L. Vallee
Samuel B. Weiss
Theodor Wieland
George Wolf
W. A. Wood
Lemuel D. Wright
David A. Yphantis

VOLUME 48
1972

ACADEMIC PRESS
New York and London

Copyright © 1972 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

CONTENTS OF VOLUME 48

Number 1, July 1972

Karin Beijer and Ernst Nyström. Reversed-Phase Chromatography of Fatty Acids on Hydrophobic Sephadex 1

Gebhard F. B. Schumacher and Wolf-Bernhard Schill. Radial Diffusion in Gel for Micro Determination of Enzymes. II. Plasminogen Activator, Elastase, and Nonspecific Proteases . 9

Issar Smith, Harriet Smith, and Sharon Pifko. Preparation and Use of RNA-Cellulose Columns 27

C. van Hooidonk, C. de Borst, F. A. Mitzka, and C. C. Groos. Chromogenic Substrates for Cholinesterases: 1-[2-Thiazolylazo]-2-acetoxybenzene Derivatives 33

J. D. Vickers and D. M. Logan. A Rapid Technique for the Analytical and Preparative Isolation of Transfer RNA from Reaction Mixtures 45

S. A. Kamath and K. Ananth Narayan. Interaction of Ca^{2+} with Endoplasmic Reticulum of Rat Liver: A Standardized Procedure for the Isolation of Rat Liver Microsomes 53

H. Cailla and M. Delaage. Succinyl Derivatives of Adenosine 3′,5′-Cyclic Monophosphate: Synthesis and Purification . . 62

Ronald O. Langner and Robert A. Newman. Degradation of Tissue Collagen by Hot Trichloroacetic Acid Extraction . . 73

S. Keresztes-Nagy, Roland F. Mais, Y. T. Cester, and J. F. Zaroslinski. Protein Binding Methodology: Comparison of Equilibrium Dialysis and Frontal Analysis Chromatography in the Study of Salicylate Binding 80

G. Kapadia and A. Chrambach. Recovery of Protein in Preparative Polyacrylamide Gel Electrophoresis 90

J. Kenneth Herd. Detection of Radioactive Acid Mucopolysaccharides on Electrophoresis Membranes 103

Ngo Tran. Improved Ionization Chamber Method for Continuous Measurement of DOPA Decarboxylase Activity 112

Jesse F. Goodwin. Reaction of Aniline and its Alkyl Derivatives with Hexoses and Pentoses 120

Bruce E. Haissig and Arthur L. Schipper, Jr. Easy Extraction of Enzymes from Small Amounts of Woody Tissue 129

Douglas J. Horgan, Ronald K. Tume, and Robert P. Newbold. Simple Spectrophotometric Estimation of ATPase and Calcium Uptake Activities of Sarcoplasmic Reticulum Preparations . 147

Jwu-Sheng Tung and C. A. Knight. Relative Importance of Some Factors Affecting the Electrophoretic Migration of Proteins in Sodium Dodecyl Sulfate-Polyacrylamide Gels . 153
Robley C. Williams, Jr. A Laser Light Source for the Analytical Ultracentrifuge 164
E. Randerath, C.-T. Yu, and K. Randerath. Base Analysis of Ribopolynucleotides by Chemical Tritium Labeling: A Methodological Study with Model Nucleosides and Purified tRNA Species 172
Kenneth S. Rogers and C. C. Clayton. Effects of pH on Benzimidazole Fluorescence 199
Wendell M. Stanley, Jr. Preparation and Analysis of L-[^{35}S] Methionine Labeled Transfer Ribonucleic Acids from Rabbit Liver 202
John W. Little. Method for Preparing NAD Labeled with ^{3}H of High Specific Radioactivity in the 4-Nicotinamide Position . 217
Maxime MacKenzie and David B. Millar. Ultrasonification of Biological Materials. I. Apparatus 225
Edward J. Robel and Alan B. Crane. An Accurate Method for Correcting Unknown Amino Acid Losses from Protein Hydrolyzates 233
R. H. Hinton and K. A. Norris. Effect of Sucrose on Continuous-Flow Analyzers 247
G. W. Skyring, P. A. Trudinger, and W. H. Shaw. Electrophoretic Characterization of ATP-Sulfate Adenyltransferase (ATP-Sulfurylase) Using Acrylamide Gels 259
Maria C. Linder and Hamish N. Munro. Assay of Tissue Ferritin 266
William D. Cohen, Robert J. Grant, and Julianna M. Breitfeller. Contractile Protein Preparations from Frozen Rabbit Muscle 279
G. A. Kochetov and P. P. Philippov. A New Method for Continuous Recording of the Transketolase Reaction 286
M. Töpert and D. H. Rammler. Cell-Free Protein Synthesis with Sodium Dodecyl Sulfate and ADP 292
F. E. Friedl. Conductometric Diffusion Rate Method for Determination of Microgram Quantities of Ammonia 300
G. L. Choules and Lawrence F. Guymon. Aluminum Planchet Counting: A Simple Method for Improved Sample Spreading 307

Short Communication

Kosi Asada, Masa-Aki Takahashi, and Mieko Urano. Phosphorylation Assay in Liquid Scintillation Counter

Using Čerenkov Radiation of ^{32}P: Application to Photophosphorylation 311

Erratum 316

Number 2, August 1972

Henry A. Feldman. Mathematical Theory of Complex Ligand-Binding Systems at Equilibrium: Some Methods for Parameter Fitting 317

Joan Wikman-Coffelt. Radioimmunoassay for Ribosomes . . 339

Carlo De Marco and Piero Luchi. Preparation and Chromatographic Properties of 2-Amino-4-thiosulfobutyric Acid . . . 346

Hedwig E. Herrick, John M. Lawrence, and David R. Coahran. Simple Methods for Determination of Methionine and Cystine in Legume Seeds 353

Adrian V. Rake. Isopropanol Preservation of Biological Samples for Subsequent DNA Extraction and Reassociation Studies . 365

Anna Hell, G. D. Birnie, T. K. Slimming, and John Paul. Controlled Fragmentation of DNA by DNase I 369

B. O. De Lumen and A. L. Tappel. Continuous Fluorometric Assay for Cathepsin B-Like Activity in Lysosomes . . . 378

Adhid Al-Arif and Michael B. Sporn. An Analytical Method for the Separation of Sugar-Methylated Ribonucleosides from Base-Methylated and Nonmethylated Ribonucleosides 386

Richard L. Myerowitz, Andreas Chrambach, David Rodbard, and John B. Robbins. Isolation and Characterization of Mouse Serum Alpha 1-Antitrypsins 394

S. Matthysse, R. J. Baldessarini, and M. Vogt. Methionine Adenosyltransferase: A Double-Isotope Derivative, Enzymatic Assay 410

E. F. Hartree. Determination of Protein: A Modification of the Lowry Method that Gives a Linear Photometric Response . 422

Klas-Bertil Augustinsson, Benny Axenfors, and Magnus Elander. Aromatic Thiol Esters as Substrates in Quantitative Esterase Determinations 428

Henry C. Reeves and Marva J. Volk. Determination of Isocitrate Lyase Activity in Polyacrylamide Gels 437

William H. Petri. Discontinuous Polyacrylamide Gel Electrophoresis of RNA 442

Stuart L. Marcus and Elias Balbinder. Use of Affinity Matrices in Determining Steric Requirements for Substrate Binding: Binding of Anthranilate 5-Phosphoribosylpyrophosphate Phos-

phoribosyltransferase from *Salmonella typhimurium* to Sepharose-Anthranilate Derivatives 448
Ralph Nixon. Volatile Amines in Mouse Brain: A Radioassay with Picogram Sensitivity 460
Günter Barth, Edward Bunnenberg, and Carl Djerassi. Magnetic Circular Dichroism Studies. XIX. Determination of the Tyrosine: Trytophan Ratio in Proteins 471
D. R. Brady and L. L. Houston. New Assay for Histidinol Phosphate Phosphatase Using a Coupled Reaction 480
Harvey A. Itano and Shigeki Yamada. 2-Aminophenanthroimidazole, Fluorescent Product of the Reaction of Phenanthrenequinone with Arginine 483
Georg Sauermann. An Apparatus for Micro Electrodialysis . . 491
D. S. S. Kumar, L. Pinck, and L. Hirth. Separation of 2′- and 3′-Mononucleotides of Plant Viral Ribonucleic Acids by an Improved Two-Dimensional Thin-Layer Chromatography . . 497
R. E. Gaensslen and Richard E. McCarty. Determination of Solute Accumulation in Chloroplasts by Rapid Centrifugal Transfer through Silicone Fluid Layers 504
L. C. Mishra, A. S. Parmar, and J. A. R. Mead. A Method for Assessing Dihydrofolate Reductase Inhibition *in Vivo* . . . 515
B. G. Hudson, L. McKenzie, and K. E. Ebner. Enzymic Synthesis of Lactose-^{14}C (Galactosyl-^{14}C) and Lactose-^{3}H (Glucosyl-^{3}H) 524
Jerry LR. Chandler and R. K. Gholson. Studies on the *de novo* Biosynthesis of NAD in *Escherichia coli:* II. Quantitative Method for Isolating Quinolinic Acid from Biological Materials 529
Henry Delincée and Bertold J. Radola. Detection of Peroxidase by the Print Technique in Thin-Layer Isoelectric Focusing . 536
Ichiro Kawasaki and Harvey A. Itano. Methanolysis of the Pyrrolidone Ring of Amino-Terminal Pyroglutamic Acid in Model Peptides 546
Takamitsu Sekine, Kimiyo Ando, Minoru Machida, and Yuichi Kanaoka. Fluorescent Thiol Reagents. V. Microfluorometry of Thiol Compounds with a Fluorescent-Labeled Maleimide . 557
J. E. Davis, G. P. Hicks, and A. E. Sherry. Minimizing Errors in Differential Kinetic Analyses of Isoenzymes: Determination of Aspartate Aminotransferase (GOT) Using Differential Substrate Levels 569
Alexander W. Wood, Mary E. McCrea, and J. Edwin Seegmiller. Radiochemical Assay for Glutaminase and Glutamic Acid Decarboxylase 581
Carlton H. Paul and David A. Yphantis. Pulsed Laser Interfer-

ometry (PLI) in the Analytical Ultracentrifuge: I. System Design 588
Carlton H. Paul and David A. Yphantis. Pulsed Laser Interferometry (PLI) in the Analytical Ultracentrifuge: II. Clocked Trigger Circuit 605

Short Communications

Susan Gregson. Polyacrylamide Gel Electrophoresis of DNA 613
W. Diezel, G. Kopperschläger, and E. Hofmann. An Improved Procedure for Protein Staining in Polyacrylamide Gels with a New Type of Coomassie Brilliant Blue . . 617
Ahmad H. Wardi and William S. Allen. Alcian Blue Staining of Glycoproteins 621
Burton Rosan. Determination of Muramic Acid in Automated Amino Acid Analysis 624
A. G. Sabelnikov. Spectrophotometric Determination of Phage Concentration in Lysates 629

Erratum 633

Author Index 634

Subject Index 636